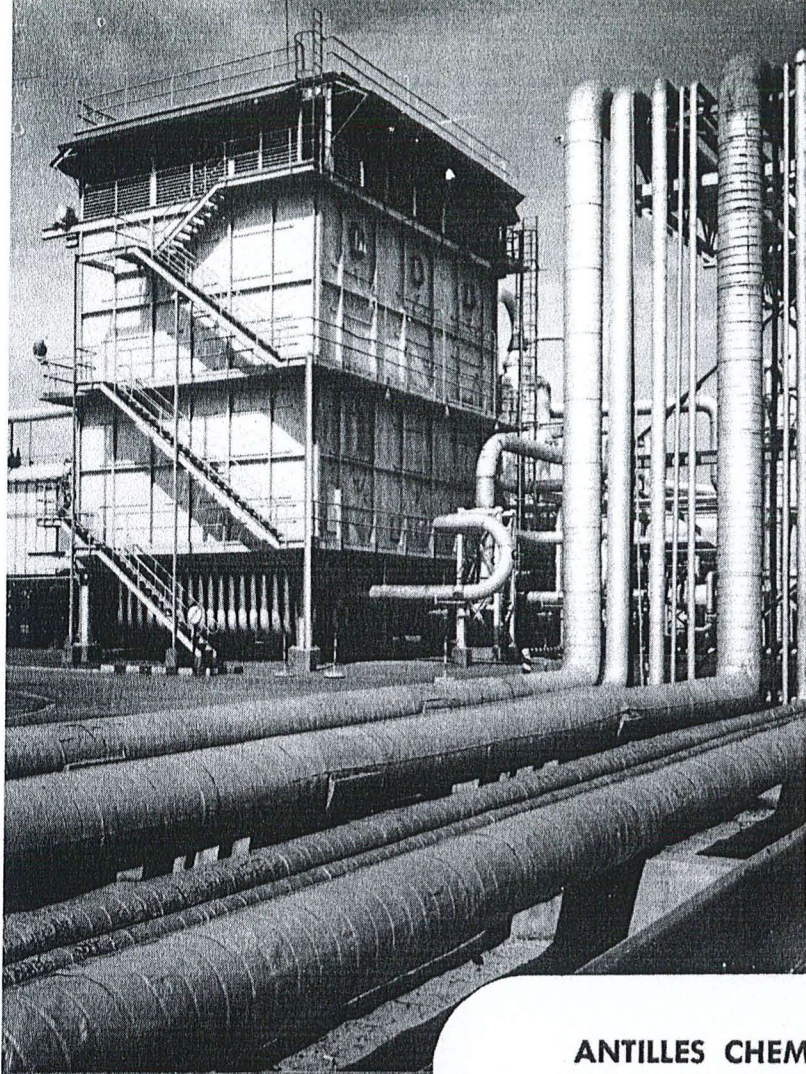




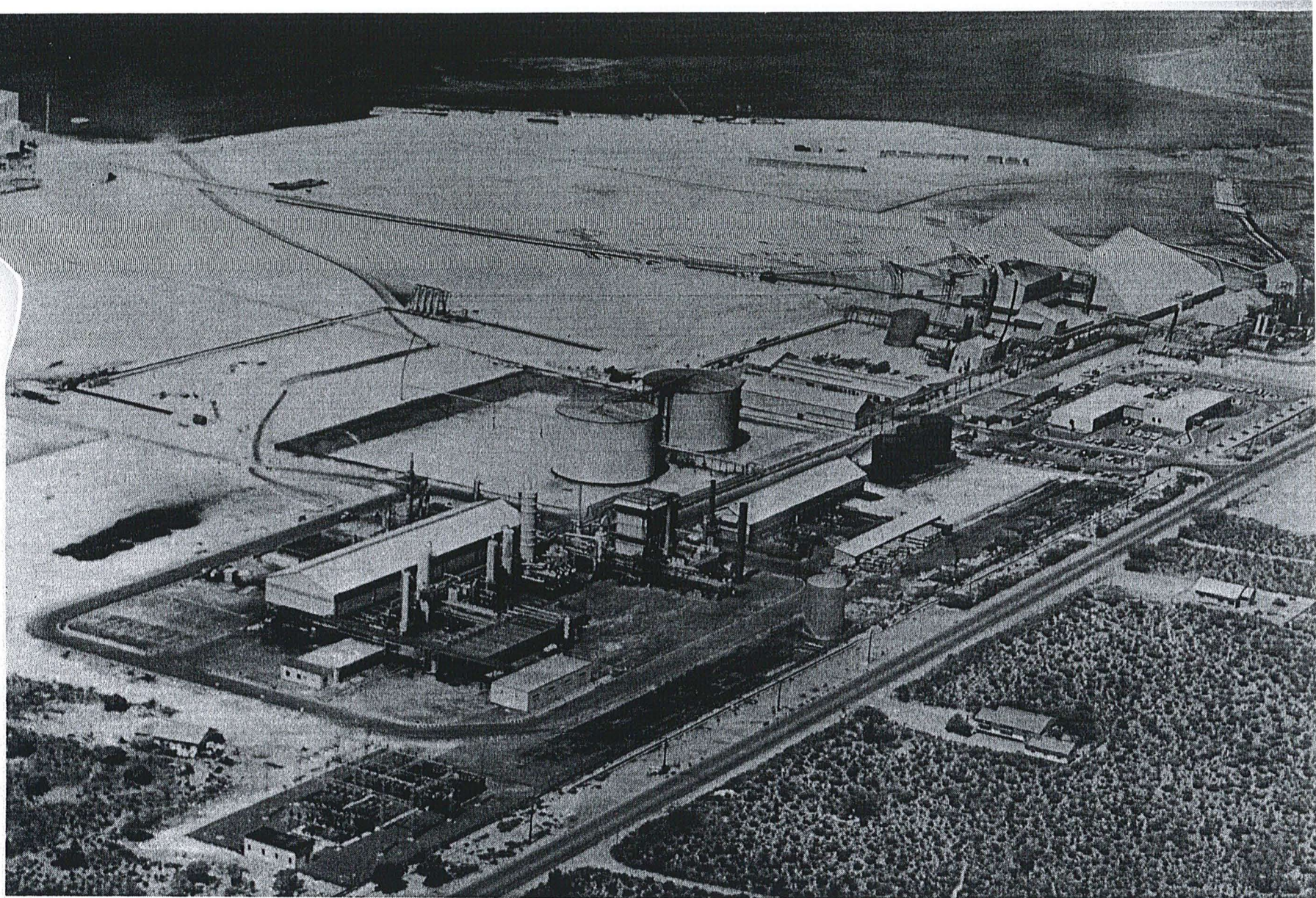
**ANTILLES CHEMICAL COMPANY
ARUBA CHEMICAL INDUSTRIES N.V.**



ANTILLES CHEMICAL COMPANY

ARUBA CHEMICAL INDUSTRIES N.V.

ARUBA
NETHERLANDS ANTILLES



AERIAL VIEW OF THE PLANTS

From left to right: ammonia plant with two storage tanks for liquid ammonia, warehouse, three fuel storage tanks (black), maintenance shops, personnel locker room, laboratory, administration building with car parking area, nitric acid plant with storage tank, complex fertilizer plant, two raw material and finished product warehouses, urea plant with 160 ft. high prilling tower. A conveyor belt runs to the harbor area, where product is coated, bagged and stored. The white tank seen in the harbor area is a nitrogen solutions storage tank.

ANTILLES CHEMICAL COMPANY
ARUBA CHEMICAL INDUSTRIES N.V.

Two companies affiliated with Esso Chemical Inter-America, Inc. are involved in the manufacture of chemical products at Barcadera, Aruba:
Antilles Chemical Company and Aruba Chemical Industries N.V.

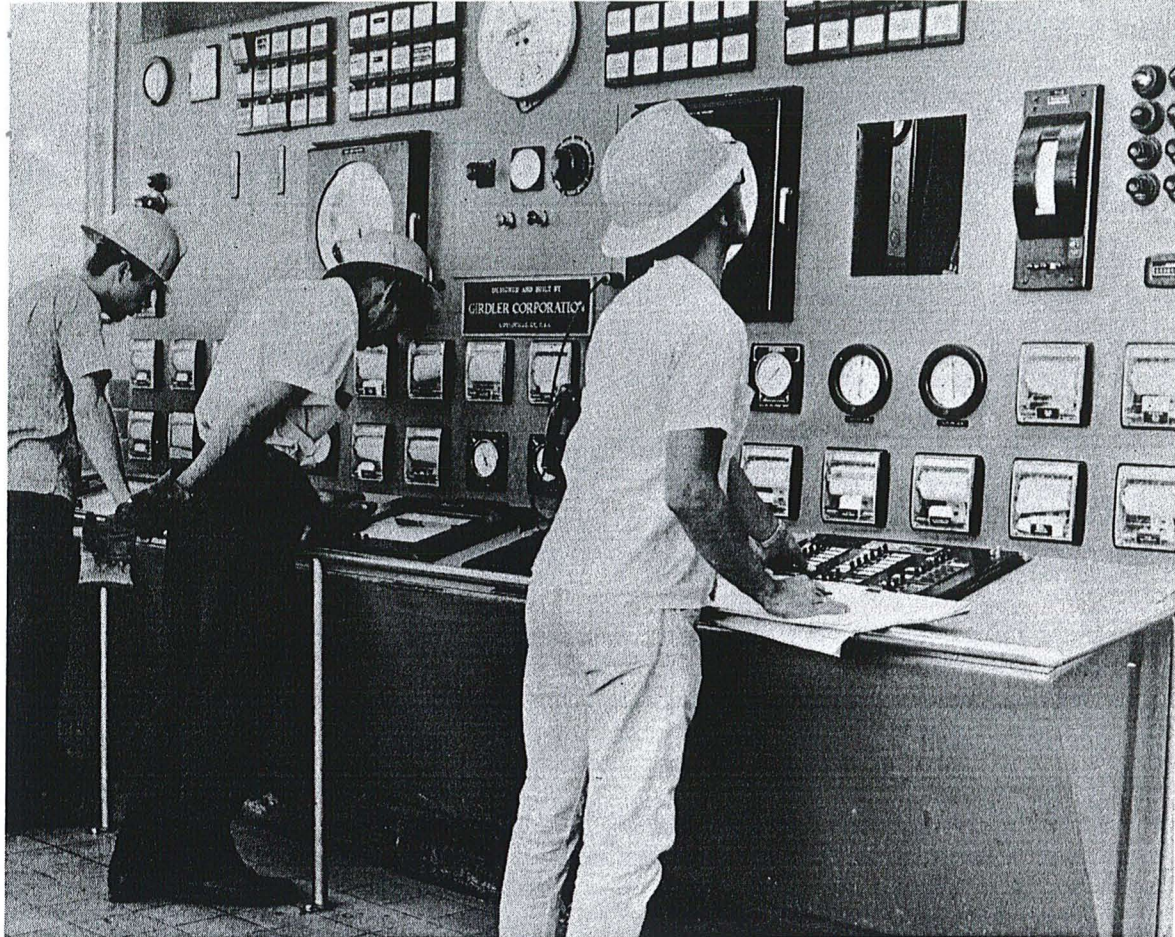
Antilles Chemical Company, incorporated in the state of Delaware, U.S.A., owns an ammonia plant. Aruba Chemical Industries N.V. is a Netherlands Antilles corporation. It owns and operates a nitric acid plant, a complex fertilizer and calcium ammonium nitrate plant, a urea plant, nitrogen solution facilities, and associated bulk storage, bagging installations, bagged product storage, materials handling and shipping facilities. Aruba Chemical Industries N.V. also operates the ammonia plant for Antilles Chemical Company.

The ammonia plant was inaugurated on May 10, 1963. The other plants, with the exception of the calcium ammonium nitrate unit, were inaugurated on December 10, 1963. The calcium ammonium nitrate (CAN) facilities were added to the existing complex fertilizer plant in November, 1966.

AMMONIA is a chemical combination of nitrogen and hydrogen. The hydrogen is obtained from refinery gas supplied by Lago Oil & Transport Company, Ltd. This gas is a mixture of light hydrocarbons, which are converted with steam to form hydrogen and carbon dioxide. The nitrogen is obtained by the addition of air to partly converted gas. Oxygen from the air reacts with a part of the hydrocarbons to form water and carbon dioxide. The carbon dioxide formed by both reactions is separated from the gas mixture of hydrogen and nitrogen by the Girbotol gas scrubbing process. The hydrogen and nitrogen are then bound under a pressure of 300 atmospheres and a temperature of 500° C under influence of a catalyst in a single stream reactor. The ammonia gas is liquified by compression and cooling; it is stored and delivered in that form. Approximately two thirds of the ammonia plant production is used to produce nitric acid, urea, complex fertilizers, and CAN. The rest is exported in tankers equipped with a refrigeration system to keep the ammonia liquid. The tanker "Esso Centro America" loaded the first shipment of ammonia from Aruba on August 3, 1963.

In the NITRIC ACID plant, a mixture of ammonia and atmospheric air is burnt in the presence of a platinum rhodium catalyst. This produces nitrogen oxides which are absorbed in pure water to form nitric acid. This nitric acid is not sold but used in the manufacture of fertilizers.

In the COMPLEX FERTILIZER plant, nitric acid and ammonia are used in acidulation and ammoniation of phosphate rock and triple super phosphate to produce complex fertilizers. Addition of potash produces the proper rates of nitrogen, phosphorous and potassium in the liquid slurry from which moisture is evaporated to form pelletized solids, the finished product. Depending upon market demand, different grades of complex fertilizers are produced. These grades vary in nitrogen, phosphorous, and potassium content to suit different crop and soil requirements.

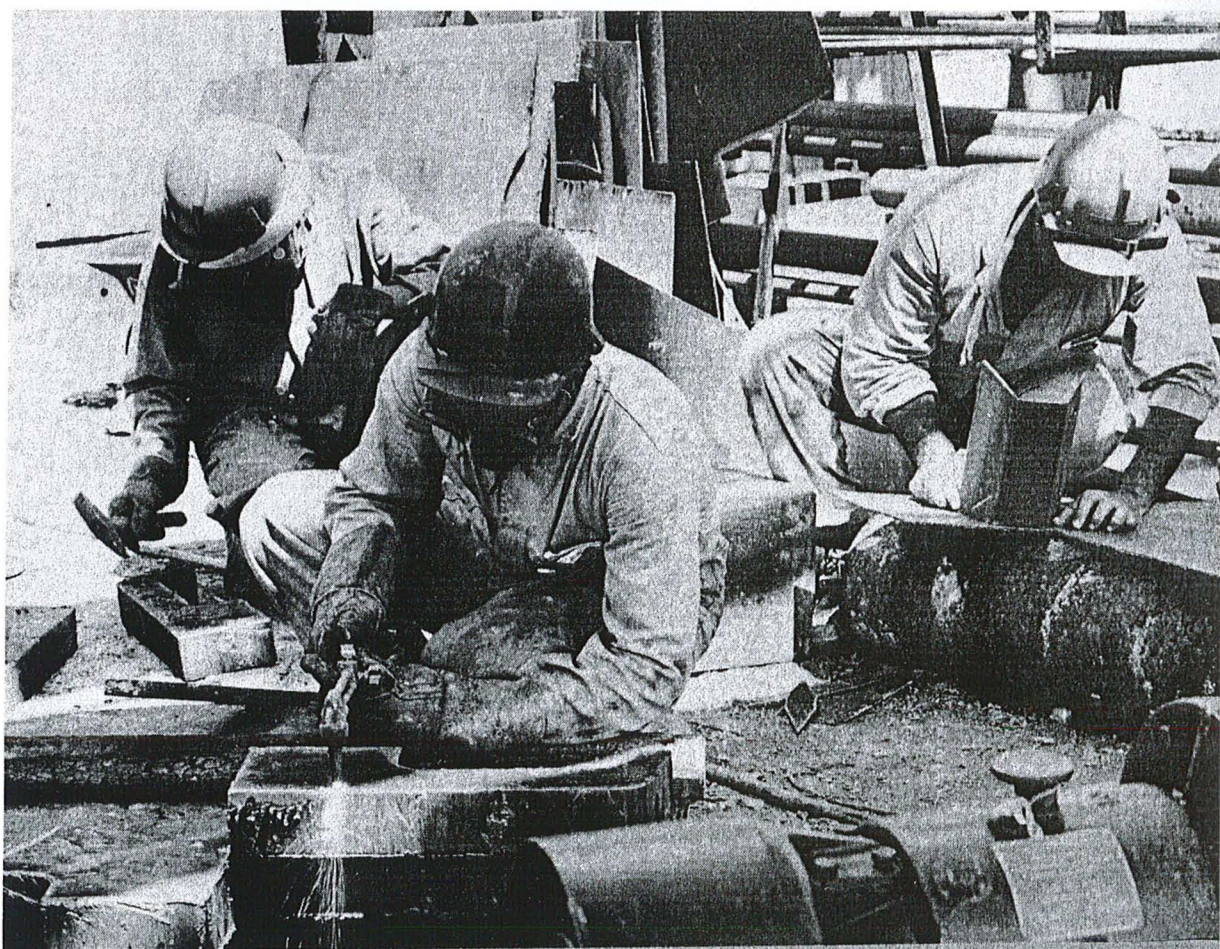


CONTROL ROOM OF THE AMMONIA PLANT

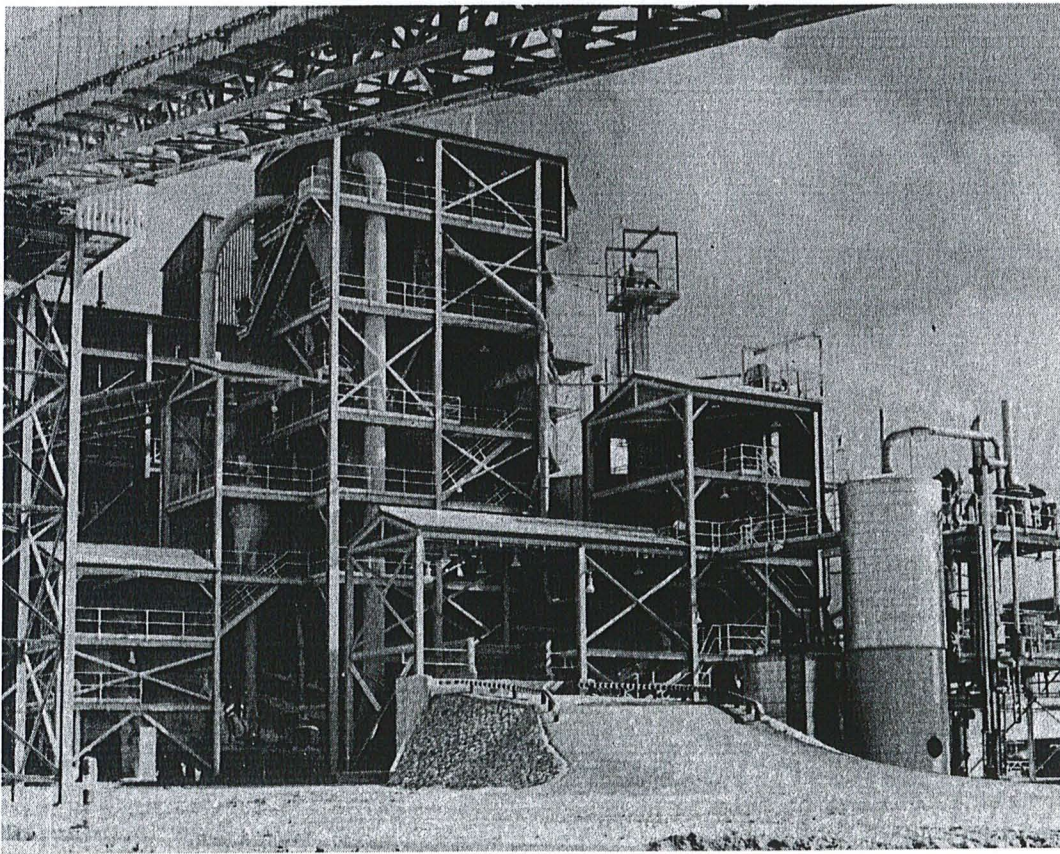
Trained Netherlands Antilles personnel operates the ammonia plant.

MAINTENANCE PERSONNEL AT WORK

Production personnel has to be backed up by competent maintenance crews to keep the plants operating efficiently.



The CALCIUM AMMONIUM NITRATE (CAN) facilities consist of two sections: the ammonium nitrate section and the limestone crushing section. CAN type fertilizer contains only nitrogen as a basic nutrient and utilizes local limestone as a filler. Aruba limestone is quarried and supplied by truck to the plant. The limestone supply is in lumps up to 14 inches in size. Crushers and grinders reduce the lumps to powder. By using the existing facilities of the complex fertilizer plant, the liquid ammonium nitrate and crushed limestone are mixed to form a slurry. This slurry is then sprayed into a rotating drum or spherodizer over heated air, thus forming the normal size fertilizer particles. The production of CAN is completely based on local raw materials, eliminating the costly freight of imported raw materials.



CAN PLANT

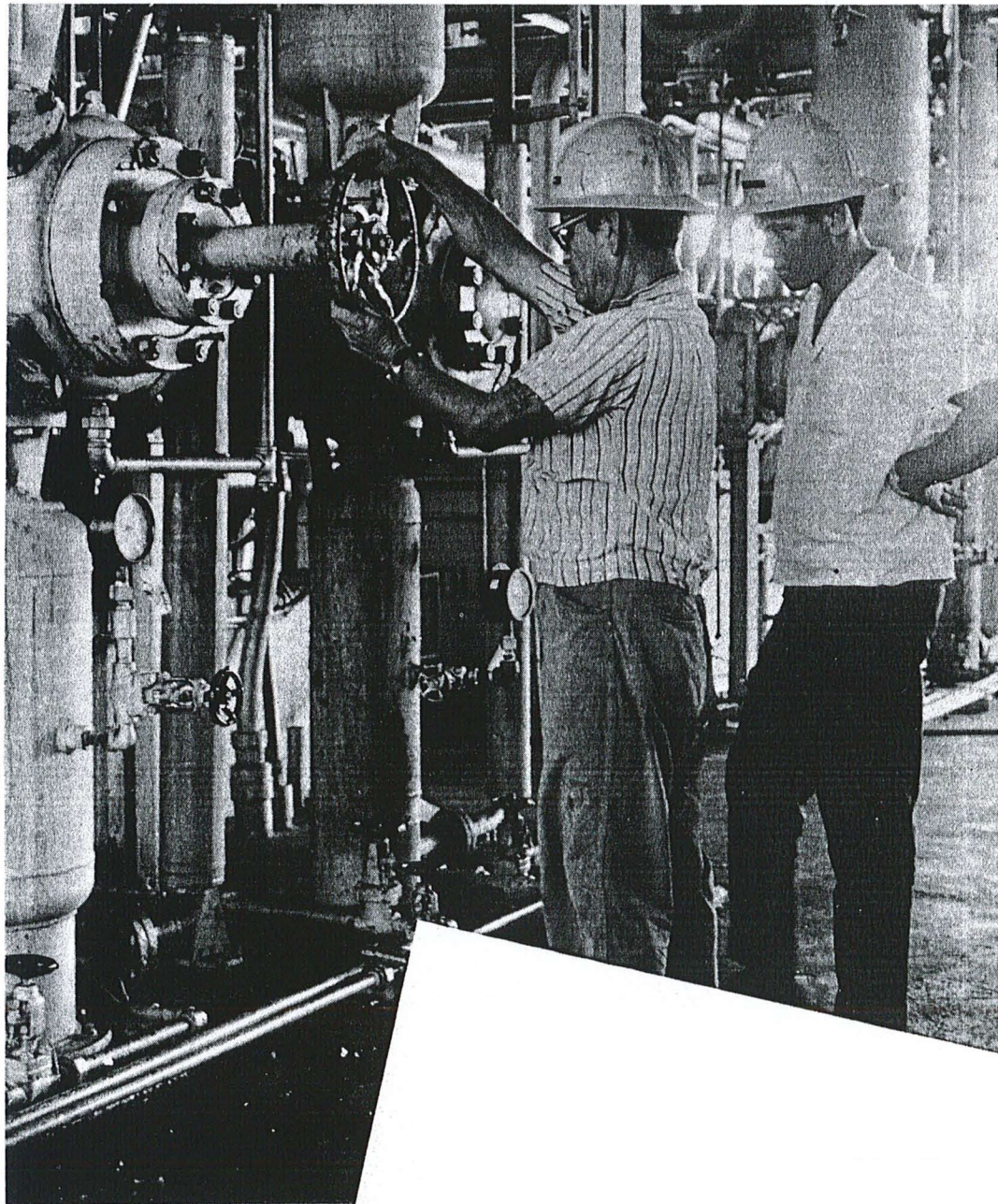
The CAN plant was added to the complex fertilizer plant in 1966. Aruba limestone and locally produced ammonium nitrate are the ingredients of CAN.

The product of the UREA plant is a fertilizer containing 45 to 46 percent nitrogen. It is produced by combining ammonia and carbon dioxide in a reactor at a pressure of 225 atmospheres and a temperature of 150° C to form urea and ammonium carbamate. Urea solution is separated, crystallized, centrifuged and dried. The solid crystalline urea is remelted and allowed to fall through a 160 ft. high tower, solidifying into the prilled form which is ready for shipment in bulk or bags.

NITROGEN SOLUTION is made by saturating a urea solution with liquid ammonia (45% urea - 15% ammonia). It is pumped from the urea plant to a nitrogen solution storage tank at the harbor. This product is exported by tanker and permits transportation of ammonia without refrigeration or use of pressure. The solution is shipped to other fertilizer plants for further processing. It may also be applied to the soil directly as a liquid fertilizer.

UREA PLANT

Production personnel adjusting a valve.



Total Plant Facilities

Ammonia Plant
Nitric Acid Plant
Complex Fertilizer Plant
Calcium Ammonium Nitrate Plant
Urea Plant
Nitrogen Solutions Plant

Production Rates

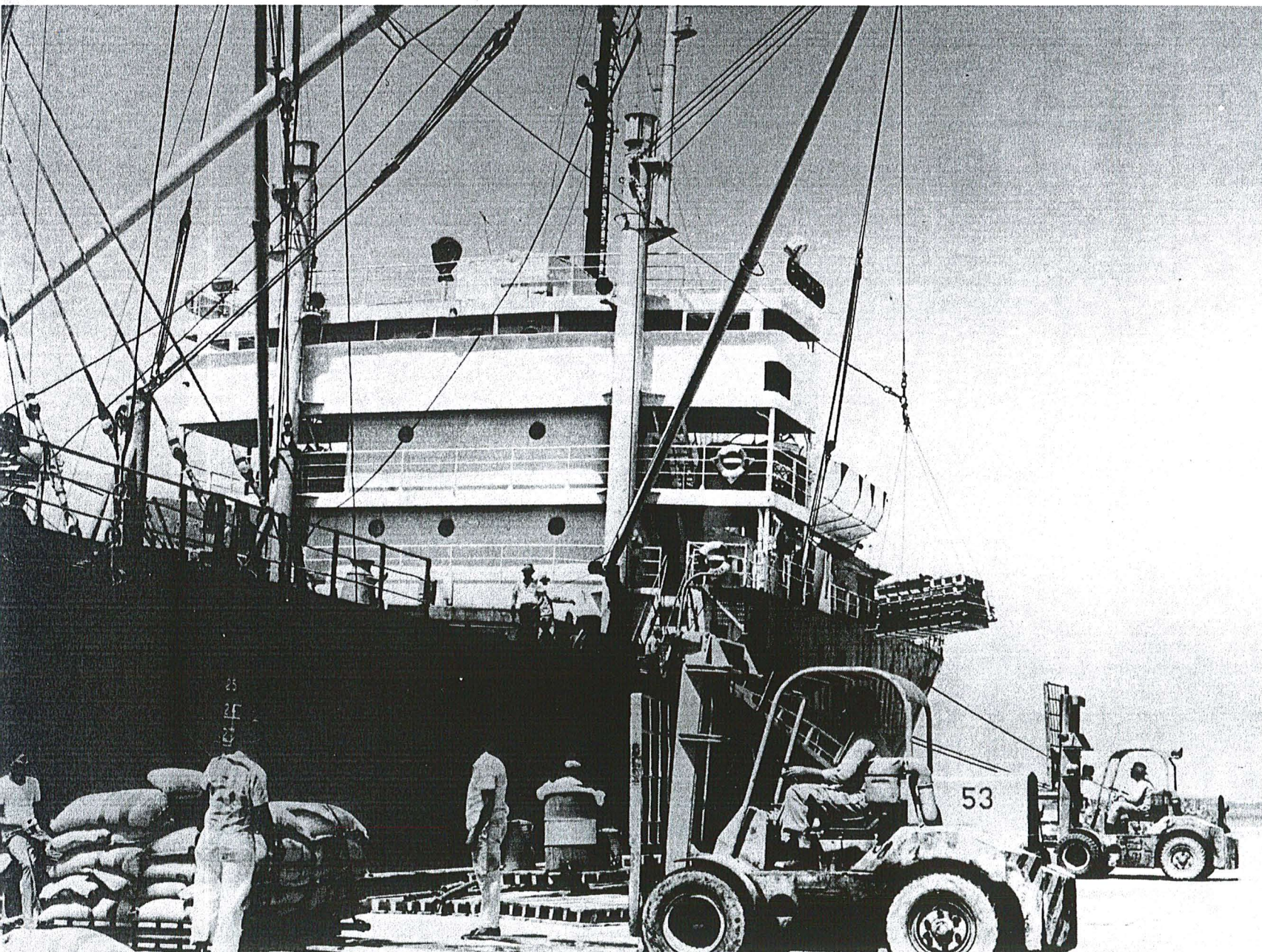
325 metric tons/day
150 "
400 "
360 "
270 "
120 "

Service Facilities

Ammonia Storage 13,500 metric tons
Solid Finished Product Storage 18,000 "
Nitrogen Solution Storage 7,000 "
Solid Raw Materials Storage 12,000 "
Three Steam Boilers 210,000 lb/hour
Salt Water System 53,000 gallons/min.
Total investment approx. \$27.0 million
Total number of employees
(excluding contracted services) approx. 330

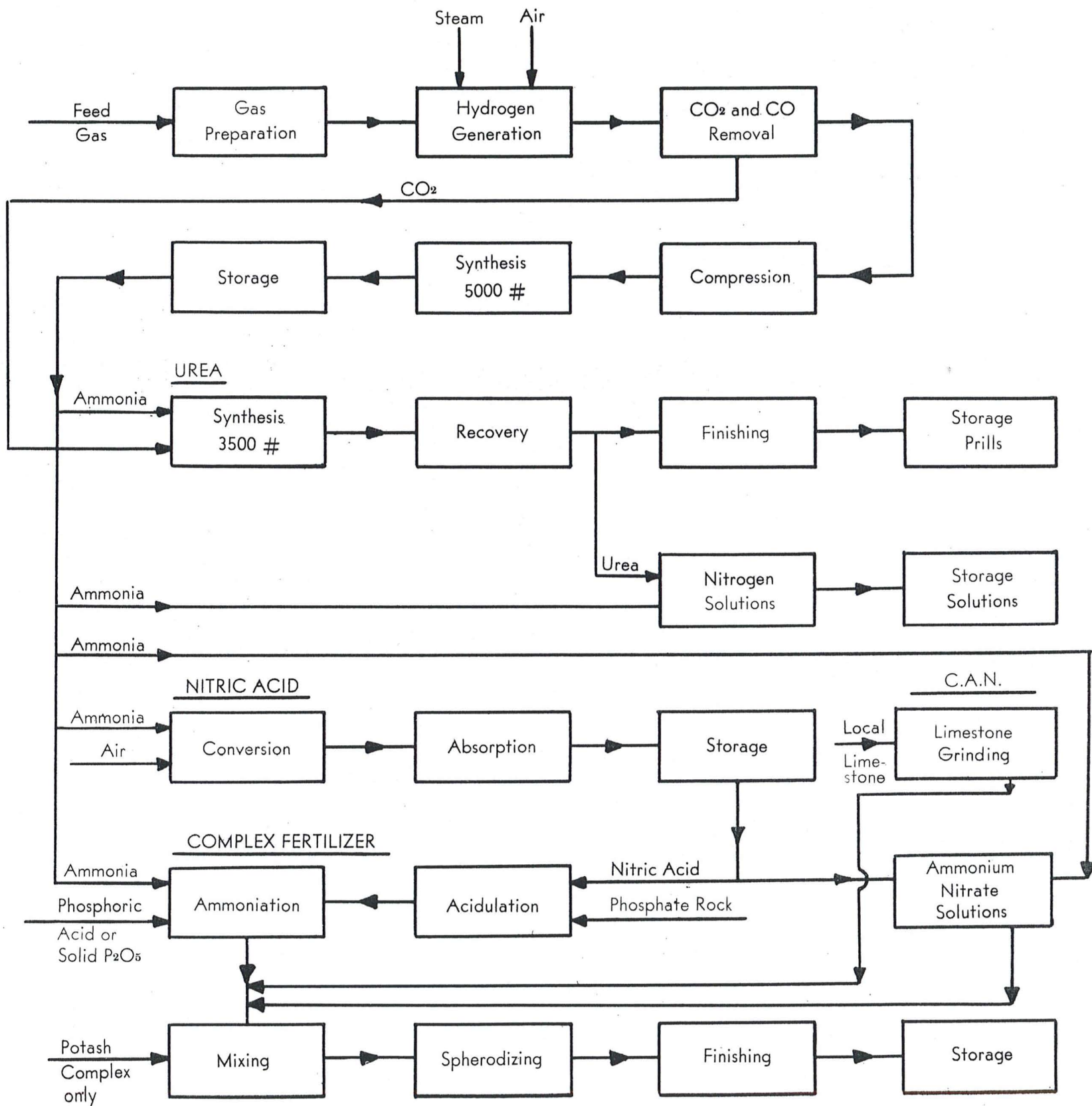
BARCADERA HARBOR SCENE

Peruvian freighter Putumayo is loaded with bagged urea. Fertilizer produced by Aruba Chemical Industries is marketed under the brand name ENGRO. Fertilizer made in Aruba has found its way all over the world.



SIMPLIFIED BLOCK FLOW SHEET

AMMONIA



Photographs by Retina Studio

Printed by



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